CARS, RAW MATERIALS AND YOUR LIFE. Toolkit for teachers and educators.
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Dear Reader,

Can you imagine the modern world without cars? We use them to do things faster and to be less dependent on others. They make it easier to pick up the kids from school, go to a party with a friend, visit relatives, go shopping or go to the swimming pool or gym. And even if it is quite difficult to park close to the office or in the city center and people usually drive alone, we still believe that cars are the best thing that humans ever invented. Also, cars are useful when it comes to transporting things on a large scale in the current transportation system. Food (from bread to exclusive products), animals, clothes, cosmetics, and also people travel thousands or hundreds of kilometers to reach the final place.

The car industry has become a strategic branch of industry for Visegrad countries over the last 20 years or so. It represents a big sustainable development challenge for future generations.

To further explore the state of the car industry in the region you can read the summary case study prepared by Glopolis from the Czech Republic, which is a great illustration of the regional context.

This educational toolkit aims to encourage you to explore the economic, social and environmental interdependencies of both car usage and the car industry on a local, regional and global level. It is also intended to raise the awareness of young people in the Czech Republic, Hungary, Poland and Slovakia about the various issues surrounding resource use. The toolkit offers support for teachers and educators to bring a change to the classroom environment and to the way topics related to growth, modern industry and sustainable development are taught. Young people will have a deeper understanding of how industry is linked to their own and other people’s wellbeing, global and social justice and the environment. Various scenarios offer a broader view when it comes to understanding how the economy and society work on different scales, and what a young person’s future role in this can be. The toolkit works not only on knowledge related issues, but also builds understanding, encourages reflection and promotes a positive attitude towards developing a more sustainable lifestyle in future.

All of us are responsible for the world’s future and transformation of its systems towards sustainability. The Sustainable Development Goals launched in 2015 mean that the commitment of the UN community needs to be transferred from declaration into practice, leaving no one behind. That’s why the goals are a plan of action for people, planet and prosperity at the same time. Only together can we make the world a better place for all of us!

GOAL 11: Make cities and human settlements inclusive, safe, resilient and sustainable together with GOAL 12: Ensure sustainable consumption and production patterns highlight the necessity of rethinking the way our lives are dependent on consumption, technology and economic growth. The proposed answer is doing more and better with less¹, which is also addressed by our material.

The school environment is a great opportunity to discuss global issues, not only past, but also those that face us at present and will face us in future. The future is of great interest for young people and is of course very important for them. We must give them a chance to have a real input and to make their own choices.

In the curriculum at all levels of education topics relate to:

- **knowledge**, such as the industrial revolution in history lessons, the environmental impact of human performance on local, national and global levels and models of economic growth in geography lessons;

**skills**, such as creativity – inventing new ideas, analyzing and looking for solutions to problems/challenges, communication skills such as taking part in discussion, presenting points of view and critical thinking including argumentation, understanding different perspectives and questioning;

**values**, such as the dignity of all humankind, equality, justice, peace and freedom;

**attitudes**, such as respect for all people, responsibility for oneself and others (people, animals, the planet), empathy, solidarity with others, openness and fairness.

The role of education is to show the world to young people and explain it to them. Even though not all curricula address the global education concept as such, all curricula are related to the listed topics, so the linkages are quite easy to find. Under each proposed scenario you will find some detailed comments to explain how to work with the material on a national level (taking into account country specific requirements).

We present 17 exercises and lesson scenarios prepared by global and environmental educators using both indoor and outdoor activities and different educational methods to give you various options to address the topics. You can choose the lessons which are close to your style of teaching or use this material as an experiment. All the proposals are inspired to some extent by a student-oriented learning process. The goals of the scenarios and their relation to the curriculum are described to guide you through the material.

You can also have a look at the age-frame to choose the scenarios which best suit the age group that you work with.

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We hope that the proposed scenarios will be an interesting journey on which both teachers and students can reflect on how the world looks and what our role is in its processes.

It is important to understand this and be aware of how we depend on the world and how the world depends on us.

Enjoy working with our toolkit,
The project team
The Car in Our Life

This exercise investigates the role cars play in our everyday lives. Cars are important to many of us because we use them for everyday transport, or we make a living as taxi drivers or workers in a car factory. We might, however, also be impacted by the air pollution and noise that they cause. This exercise touches on some of the positive and negative impacts of the automotive industry on people around the world.

Key words: car, values, jobs, impacts, global, everyday life.

Age group: 11-13 years and 14-16 years.

Time required for the exercise: about 30 minutes.

Links to curriculum: ethics, geography.

Materials needed: paper, writing tools, pictures clipped out beforehand.

Goals of the exercise: The student:

- Recognizes the various roles that cars can play in people’s lives throughout their lifecycle,
- Improves their critical thinking,
- Improves their systems thinking,
- Gains more knowledge on various aspects of car production and use and global justice issues.

Type of exercise: Group discussion, class discussion.

Description of the Exercise:

1. Show a variety of pictures where people and cars are shown in various contexts (family driving in car, youngster taking care of car, millionaire with luxury car, people washing car at car washer, workers in a factory making a car, car mechanic repairing a car). You can provide the suggested pictures (see the link in additional materials) or you can ask the students to find and clip them from magazines advance.

- Ask the students to discuss the various contexts in groups and to list in the group what role the car can play in people’s lives. Ask the students why cars are important for people. Students can also list reasons not shown in the pictures.

- List the various roles in a table in a joint discussion with the class. An additional batch of pictures can be either distributed during the discussion within the groups to focus on aspects of job creation, impacts and global justice, or these can be shown to the whole class and embedded into the joint discussion.

2. Lead a discussion on both the positive and the negative aspects of cars. Consider different geographical scales and thus also put the discussion into the context of global justice issues. The depth of the discussion can depend on the age group.

Comments to the Teacher:

You can start focusing on the role of cars through their use in everyday life, which is easiest to grasp for students:

In the beginning, when students identify the various roles and functions of the car, you can give them hints about the importance of:

- Age and family status (why could a car mean something different to a young person owning their first car, to a family with children, to an older person), which might mean that the car plays a different role (symbol of independence, role in recreation like travelling to holidays, the ability to get to places independently, etc.).
- **The geographical location**, where they are used (e.g. in sparsely populated places versus big cities),

- **The different social statuses of the users** (e.g. the social status that expensive cars can represent, social status can be also shown by simply owning a car whatever type it is).

You can ask students about the role of cars in the context of jobs, and ask them what kind of jobs car use generates throughout the whole life cycle. Pictures can help to identify the various stages of the car life cycle and the various jobs involved: e.g. mining the metal ores, smelting the ores, producing the car parts, assembling the cars, advertising, selling, repairing, washing, scrapping the wrecks, remanufacturing into new cars. You can ask them to give estimates of how many people work in the automotive industry in their own country. (In the Visegrad countries the automotive industry, which is more than just direct and indirect car manufacturing as it also includes automobile use connected jobs such as car sales, car repairs, transport connected jobs, etc. is an important sector for employment. About 792,783 people were employed in the four countries in the automotive industry in the last years: in the Czech Republic 155,366, in Hungary 115,717 in Slovakia 114,500 and in Poland 407,200 people, for additional figures please see the attached case study). Do they know anybody whose job is directly or indirectly related to the production or use of cars?

You can ask students about the role of cars through their **impacts**. Pictures can help to identify the various impacts of cars on people’s lives, which go beyond the positive ones through car ownership and job creation. These impacts can be direct health related impacts like smog (pictures for instance on an air pollution meter from a city, or people wearing masks in the street can hint at this), accidents, obesity related to changed lifestyle and less physical activity such as biking or walking, more stress related to traffic jams. Other impacts can be more indirect through the degradation of the environment (e.g. picture showing the overtake of land by road transport infrastructure, the killing of animals) and specifically climate change (e.g. picture showing extreme heat waves, or satellite images showing the disappearance of glaciers – can they make the link between these images and car use?). You can ask the students to list how they are personally impacted by car use in their own life (going beyond the ownership aspect).

You can ask students about the **global aspects** of car production and use, by showing pictures of various roles and impacts in different geographical locations. How can the role of cars be different for people living in faraway places? Pictures of people from different continents can demonstrate this (e.g. miner from Africa mining minerals used for cars, American farmer in a drought struck land most likely due to climate change, Asian worker working in a factory producing car parts or transporting goods in the countryside with his car). Lead a discussion about the interconnectedness of our global economy, where people are connected to each other through product value chains and global impacts. You can also ask students to select one picture and describe from a personal perspective how they are impacted by car use, even if they do not drive a car.

In summing up the discussion you can highlight to the group the many roles that a car can play in our lives, and also the different impacts it exerts on other people in faraway places.

It is important that students present their own thoughts throughout the discussion, and that they are encouraged to absorb and add to each other’s views.

The pictures used in the exercise will be useful hints for the students. The pictures provided respect the Code of conduct on images and messages on the global South which especially requires that images of people and places do not strengthen existing stereotypes or harm human dignity. The depth of the discussion can be adjusted to the age group, focusing more on the user aspects (like the daily benefits of car use, related air pollution problems, etc.) among younger ones, and more on
the impacts and global aspects among the older students (like links to climate change through carbon-dioxide emission, job creation through car manufacturing, etc.).

**FOLLOW UP:**

Students can look for interesting data on car use/production/impacts, which highlights the various aspects discussed (e.g. how many people work in mines in South America, how many cars do 1000 Czech/Hungarian/Slovakian/Polish and 1000 Senegalese or Bangladeshi people own on average, how many cars are in use in their country), and share this with the class at a later date. You can also use the exercise ‘How much is this car’ as a follow up.

The exercise titled ‘The ice face of Patagonia’ is a comprehensive exercise consisting of three modules, which encourages students to explore how climate change impacts far away places, how their own actions relate to that, and to search for ways for reducing such negative impacts. This exercise is be ideal to incorporate into project days or weeks on environmental and sustainability topics, but elements can be incorporated into the formal education as well. The description of the exercise can be downloaded: [http://www.ceeweb.org/wp-content/uploads/2017/09/Ice-face-of-Patagonia.pdf](http://www.ceeweb.org/wp-content/uploads/2017/09/Ice-face-of-Patagonia.pdf)

**ADDITIONAL MATERIALS:**

- The pictures are collected in line with the code of conduct on the use of on images and messages on the global South, which is available here: [http://dochas.ie/sites/default/files/Illustrative_Guide_to_the_Dochas_Code_of_Conduct_on_Images_and_Messages.pdf](http://dochas.ie/sites/default/files/Illustrative_Guide_to_the_Dochas_Code_of_Conduct_on_Images_and_Messages.pdf)
- You can find more information on the different impacts of car production and car use in the interactive online map (see the exercise below)
- You can find more information on the raw material use implications of a smartphone (which is in many aspects similar to a car) in the short animated video: [https://www.youtube.com/watch?v=SmPnUPmlF54](https://www.youtube.com/watch?v=SmPnUPmlF54)
This exercise highlights the dependence many of us currently have on cars and therefore the importance of the car manufacturing industry for our society.

**Keywords:** car, car use, transport, family, everyday life.

**Age group:** 11-13 years and 14-16 years.

**Time required for the exercise:** 20 minutes.

**Links to curriculum:** geography, elements of economy

**Materials needed:** paper, writing tools.

**Goals of the exercise:** The student:
- Thinks about family car use,
- Explores car dependency.

**Type of exercise:** yes or no question test based on test sheets or the teacher’s questions, group evaluation.

**DESCRIPTION OF THE EXERCISE:**

1. Ask the students the following YES-NO questions:
   - Is there a special license plate on your car (with a nickname, a special name or a slogan)?
   - Are there car body stickers on your car (messages, symbols, pictures)?
   - Are there objects (e.g. plush animals) in your car which make it cozy?
   - Do you wash and clean your car more than once a month?
   - Do you choose to use your car rather than other means of transport in bad weather?
   - Would your family care if someone accidentally scribbled, or damaged your car?
   - Do you use your car for everyday shopping trips?
   - Do you listen to the car radio or the media player at high volume?
   - Do you use your car for distances of around 500 meters?
   - Do you use your car almost every day of the year?

2. Ask the students to count up the number of “NO”s they put down.

3. Evaluate the students’ answers based on this number:
   - 0-3: You have to think over your attitude to the family car. Your car should not be a member of the family. It is a household object, not a person. You shouldn’t be fond of it or love it. Love each other, not your car.
   - 4-6: You seem to be a bit car-dependent. You shouldn’t feel at home in your car - you shouldn’t domesticate it. Spend more time outdoors and focus on developing your home in an environmentally friendly way, not beautifying your car.
   - 7-10: A car is just a means of transport in your family. You use it well and even choose to use public transport, cycling, walking or running instead sometimes.

4. Discuss with the group what their result means. Ask if they would like to change it or not and how it might change in the future. As it is a test it is difficult to avoid comparison, but please try to avoid any judging among students related to the topic.
COMMENTS TO THE TEACHER:
It could be important, based on your knowledge of the group, to end the exercise if there are discriminatory comments being made, especially related to the economic status of students.

The most important part of the exercise is the summary and the interpretation of the results of the test. Be careful not to judge, but rather to explain. Try to give good points about all scores from different perspectives to show that the test is not about getting the highest mark and those who get a low score should not be upset/embarrassed.

FOLLOW UP:
Discuss how students can change their dependency on cars. Set targets for doing this and evaluate results at a later date.

The exercise titled ‘The ice face of Patagonia’ is a comprehensive exercise consisting of three modules, which encourages students to explore how they impact nature and other people in different countries through their everyday actions contributing to climate change, and search for ways for reducing such negative impacts. This exercise is ideal to incorporate into project days or weeks on environmental and global education topics, but elements can be incorporated into the formal education as well. The description of the exercise can be downloaded:

ADDITIONAL MATERIALS:
- Article on some possible negative effects of car dependency
  https://www.strongtowns.org/journal/2015/1/20/the-negative-consequences-of-car-dependency
- Info about the contribution of cars to climate change and some of Greenpeace’s views on electric and hybrid cars and the future of the industry in English:
  http://www.greenpeace.org/international/en/campaigns/climate-change/cars/questions-answers/
BIKE TO SCHOOL!

Biking to school is an environmentally friendly transportation mode, which can reduce the negative impact of transportation and car use. This exercise encourages students to share their thoughts about biking and to discuss ways to improve the conditions for this.

- **Keywords:** biking, travel, environmental impacts.
- **Age group:** 11-13 years and 14-16 years.
- **Time required for the exercise:** 35 minutes.
- **Links to curriculum:** geography, form tutor period, biology (healthy education), civil society.
- **Materials needed:** printed worksheets, pencil.
- **Goals of the exercise:** The student:
  - gains more knowledge about transportation alternatives,
  - receives tips for everyday actions,
  - is encouraged to take responsibility for the environmental impacts of their choices.
- **Type of exercise:** individual work followed up by discussion.

**DESCRIPTION OF THE EXERCISE:**

1. You can start with explaining the goals of the exercise, which is to explore the biking habits of the students and to discuss the ways of how biking can be promoted and made easier in the town.

2. Distribute the printed worksheets to the students and ask them fill it in individually.

3. Evaluate the worksheets in the class and initiate a discussion on the answers. You can explore with the students their transportation habits, their motivations behind, the various motorised and environmentally friendly transportation modes, their impacts on the environment and the people themselves, the limiting factors and conditions in using a bike to get to school, their ideas and recommendations towards the school and the municipality to improve the conditions for biking, etc.

**COMMENTS TO THE TEACHER:**

The number of children walking and biking to school has been declining for decades due to what experts in engineering, planning and health promotion agree are mostly traffic-related issues. This exacerbates the incidence of chronic diseases linked to physical inactivity such as diabetes, heart disease, stroke, cancer and mental illness and has serious impacts on individual lives. However, school travel planning and school-travel focused infrastructure can help to reverse this trend.

Many people of all ages and abilities would like to walk or bike more often, but that aim is compromised far too often by the lack of bicycle infrastructure or, especially for young people, by heavy traffic and dangerous crossings. That's why municipalities have to create dedicated walking and cycling infrastructure aimed at building age-friendly, bike-friendly, kid-friendly, accessible communities, while schools can also do a lot by promoting biking and creating sufficient parking space for bikes at their premises.

**FOLLOW UP:**

Depending on the outcomes of the discussion you can encourage students to prepare a common open letter addressed to the school director or the local mayor, expressing their wish and recommendations for improving conditions for biking.
The exercise titled ‘The ice face of Patagonia’ is a comprehensive exercise consisting of three modules, which encourages students to explore how they impact nature and other people in different countries through their everyday actions contributing to climate change, and search for ways for reducing such negative impacts. This exercise is ideal to incorporate into project days or weeks on environmental and global education topics, but elements can be incorporated into the formal education as well. The description of the exercise can be downloaded: [http://www.ceeweb.org/wp-content/uploads/2017/09/Ice-face-of-Patagonia.pdf](http://www.ceeweb.org/wp-content/uploads/2017/09/Ice-face-of-Patagonia.pdf)

**ADDITIONAL MATERIALS:**

- Website of a movement to make the world car free: [http://carbusters.org/](http://carbusters.org/)
- **Worksheet** (Worksheet in the annex).
WHERE DOES MY CAR COME FROM?

This exercise teaches students about the complex supply chain behind everyday cars. It highlights some of the negative environmental and social impacts of aspects of this supply chain and therefore of the car manufacturing industry in general.

Keywords: car, raw materials, extraction, car production, impacts, global.

Age group: 11-13 years.

Time required for the exercise: 45 minutes.

Links to curriculum: geography

Materials needed: photo of car (on paper or on screen), printed worksheets, writing tools, whiteboard, map of the world.

Goals of the exercise: The student:

- Recognizes interdependencies between global South and North related to car production,
- Understands the main parts of the supply chain in car production,
- Reflects on the additional costs of car production such as child labour, conflicts, environmental pollution,
- Discusses the idea of fairness/justice in the market using the example of the automotive industry.

Type of exercise: brainstorming, group work, plenary discussion, analysis of simple statistics.

DESCRIPTION OF THE EXERCISE:

1. Explain the goals of the lesson to the group and ask them if they understand them by thumbs up and thumbs down.

2. Show on a screen or on the board the photo of the car. You can use one of the new photos of a concept car or any other from the latest commercials on TV or in newspapers. Ask the group if they like it and if they would like to have one or maybe their parents would like to. Ask what they think about a person who owns such a car and who produced it.

3. After collecting answers divide the class in three groups. Each of the groups will receive a different part of the car.

4. Give each of the groups the relevant printed worksheet.

5. Ask each group to answer the following questions:
   - Is this part needed in a brand new car or can it be done without or swapped for something else?
   - What kind of raw materials are needed to make it? Give at least two examples
   - Where do they come from? Which part of the world? Is it close to Poland, the Czech Republic, Slovakia or Hungary?
   - Do you know anyone working in the automotive industry? If so, briefly describe his or her job.

6. Give each group 7 minutes to find the information and discuss it in small groups.

7. Ask each group to present what they have discussed to the class. Use a world map to point out where raw materials were mined and add on arrows from there to your country.

8. Ask the class what they think about engaging at least half of the world in car production. Do they think that it is fair and effective? And do they want to be engaged in car production for other countries.
Give the students some statistics related to the automotive industry. You can use the following data or refer to the case study on the automotive industry provided: [http://www.ceeweb.org/wp-content/uploads/2017/08/Car-case-study-V4-countries.pdf](http://www.ceeweb.org/wp-content/uploads/2017/08/Car-case-study-V4-countries.pdf)

In 2015 there was 1.1 billion cars worldwide (in 2017 the global population is 7.5 billion people), which means that for every car there are 6.5 people. It is estimated that in 2025 there will be 1.5 billion cars, and in 2035 2 billion. Statistics from Poland tell us that there are 599 cars per 1000 people, 35 more than the European average. More than 50% of European cars use petrol, around 41% diesel and about 5% use alternative energy (hybrid or electric cars) based on a report by the European Automobile Manufacturers' Association. In Poland around 13% of cars are alternative energy cars and according to the International Energy Agency in 2016 there are more than one million electric cars worldwide.

**COMMENTS TO THE TEACHER:**

At the beginning of the lesson there is a time to challenge the car as a product which defines your economic and social status. If you observe economic inequalities in a group, be careful during the brainstorming between students. You can also ask them to refer only to their situation and not address opinions to other students from the group.

The idea of giving the personal story of a factory worker (mentioned in the description) is not obligatory, but in Visegrad Countries it might be found useful.

The idea of showing the interdependencies between the global South and North using the map seems quite simple, but if you find it difficult for the whole class you can also continue the work in small groups and then ask each group to refer their findings to the map in turn.

**FOLLOW UP:**

If the group finds it interesting, you can go further in the discussion about other additional costs of the car using the exercise titled ‘How much is this car?’ and about the life cycle of cars in the exercise ‘The life cycle of a car’.

**ADDITIONAL MATERIALS:**

- History of the car industry from a teenager’s point of view in article “What will happen to vehicles without fossil fuels?” (in English): [https://www.iop.org/activity/groups/subject/env/prize/file_52516.pdf](https://www.iop.org/activity/groups/subject/env/prize/file_52516.pdf)
- Short clip on how car doors are made (in English): [https://www.youtube.com/watch?v=r9byGJtbCws](https://www.youtube.com/watch?v=r9byGJtbCws)
- Based on an article on Conflict Minerals from the blog Enough Project: [http://enoughproject.org/blog/conflict-minerals-101](http://enoughproject.org/blog/conflict-minerals-101)
- Short clip in Polish on conflict minerals: [https://www.youtube.com/watch?v=iTKKpW9Of0A&list=PLU_f6JHM7Cl0DCGRhEPnPjHe8YDzq7dtE](https://www.youtube.com/watch?v=iTKKpW9Of0A&list=PLU_f6JHM7Cl0DCGRhEPnPjHe8YDzq7dtE)
- Petrol engines in Britannica: [https://www.britannica.com/technology/gasoline-engine](https://www.britannica.com/technology/gasoline-engine)
THE LIFE CYCLE OF A CAR

Keywords: car, life cycle, environmental impacts, social impacts, economic impacts.

Age group: 11-13 years.

Time required for the exercise: 15 minutes.

Links to curriculum: geography, biology, ecology

Materials needed: printed worksheets, pencil.

Goals of the exercise: The student:
- Gains knowledge about the various phases of the life cycle of a car,
- Improves systems thinking.

Type of exercise: individual exercise.

DESCRIPTION OF THE EXERCISE:

1. You can start with describing the goal of the exercise, which is gaining understanding about what is required until we can start using a car, and what happens to it, once we stop using it. You can ask if the students have comments on it.

2. You can then ask the pupils to present their general ideas about the lifecycle of a product using the example of a car. You can ask general questions like: How is a car made? Where do the raw materials originate from? What happens to the car once we do not use them?

3. With the input from the students, list the main phases of the life cycle of a car on the blackboard: 1. production phase 2. use phase 3. end phase.

4. After having the general understanding of the production phase, use phase and end phase of products, you can distribute the worksheet to each student and ask them to complete the exercise on categorising the various elements of a car life cycle into the production, use and end phases.

The correct categorisation is this:

A. PRODUCTION PHASE:
- Mining raw materials
- Extracting sand
- Producing glass from sand
- Extracting rubber from plants
- Drilling oil
- Refining oil to produce various types of plastic
- Processing ores in smelters
- Growing cotton in the field
- Producing threads from cotton and producing textiles from threads
- Producing car parts
- Research in technology to improve the performance of the cars
- Transport of car parts
- Assembly of car from parts in car factory
- Producing energy from fossil fuels or renewable resources

B. USE PHASE:
- Driving the car
- Drilling oil
- Refining oil and producing diesel and petrol
- Repairing and maintenance of the car (e.g. cleaning)
- Producing energy from fossil fuels or renewable resources
C. END PHASE:

- Collection of car wrecks
- Recycling recyclable elements (e.g. aluminium, steel, parts of the car battery)
- Landfilling/incinerating those parts of the car, where recycling is still not feasible
- Producing energy from fossil fuels or renewable resources

COMMENTS TO THE TEACHER:

Energy production is relevant in all phases of the lifecycle. However, for younger students this aspect can be ignored for the production and end phases, as energy production and use in the form of petrol and diesel is most tangible and straightforward in the use phase.

FOLLOW UP:

You can ask students to list the various stages of the life cycle of another product (e.g. t-shirt, bicycle, book, bread or shoe).

ADDITIONAL INFORMATION:

- Scroll down for the life cycle of a family car
- Worksheets: Worksheet in the annex.
INTERACTIVE MAP – CAR LIFE CYCLE

This map provides an engaging and memorable means of teaching students about the environmental and social impacts of the car industry. It can be used independently or as an additional visual tool in other exercises.

Key words: car, life cycle, raw materials, extraction, manufacture, car production, active service, waste, recycling, impacts, global.

Age group: 11-13 years and 14-16 years.

LINK TO THE WEBSITE:
http://www.ceeweb.org/interactive-map/
How much is this car?

This exercise introduces students to the concept of an externality (the effects of a good or service on other people that use them) and encourages them to consider the negative externalities related to car use and the automotive industry.

Keywords: car, values, jobs, externality, negative externalities, real cost, global, environmental and social injustice, impact.

Age group: 14-16 years.

Time required for the exercise: 45 min.

Links to curriculum: civic education, ethical education.

Materials needed: Table, paper, writing tools.

Goals of the exercise: The student:

- Recognizes the basic principles of the green economy,
- Improves his/her systemic thinking,
- Improves his/her critical thinking,
- Changes his/her values towards sustainable ones.

Type of exercise: class work, discussion, homework.

1 Start with describing the aims of the exercise, which is to understand, what the real price of car use is, including those costs that the drivers themselves do not pay for, but which are paid for by all of us in the society.

2 Ask the class ‘What are the environmental and social consequences of using a car?’ and record answers.

3 Compare this list with the following negative externalities list:
   - Traffic congestion and scarcity of space,
   - Traffic collisions,
   - Air pollution,
   - Noise,
   - Climate change,
   - Costs for nature and landscape (loss of public and natural space),
   - Water pollution,
   - Soil pollution.

4 Explain what is meant by an externality.

5 Put the students into small groups and ask each to describe one of the listed negative externalities. Ask them to consider its impact on health, the economy, the environment and life in general. Encourage in-depth discussion.

6 Ask each groups to present what they have discussed to the class.

COMMENTS TO THE TEACHER:

The external costs of transport are considerable. By external costs we mean the impacts of car use or road transport on other people (and broadly on society) than those directly using it (the drivers and passengers). Today’s transport users are not covering large parts of the costs of noise, pollution, greenhouse gas emissions and other cost factors, which affect many other people as well. Costs of accidents are covered in part (mostly through the mechanism of insurances), but for instance related health care costs are paid for by
society. Even though external costs do not have an explicit market value, they can be observed in expenditures on police and infrastructure management, hospital charges, public health spending and the loss of quality of life.

**FOLLOW UP:**

1. You can set as homework the task of estimating how important these negative externalities of car use are. They should estimate the relative importance of: climate change; noise; air pollution; accidents; so called up and downstream externalities, which are generated before the use phase of the car in the manufacturing phase, and after the use phase when the car becomes waste; and other externalities (including loss of natural habitats, time losses for pedestrians due to separation effects and soil and water pollution).

The relative importance of negative externalities of car use from the most to the least important ones (see the calculations in the study linked among the additional materials below):

- Accidents costs
- Climate change costs
- Up + downstream external costs
- Air pollution costs
- Other costs

2. While the existence of negative externalities seems to be agreed upon, it is more complicated to grasp the positive externalities of car transport (when people other than the drivers of cars benefit from car use).

Some of these positive impacts for others of cars and the development of road transport include:

- Time is saved through car transport as an alternative to other transport modes and it makes places more easily accessible. Therefore it can benefit people by giving them more time to spend with their family or friends and enable more regular visits,
- Greater accessibility of remote places, which leads to increased land value and can improve the access of local people to social services like healthcare or education,
- Development of urban agglomeration, which means affordable housing is available to people outside the crowded and often more expensive city centres,
- Innovations in the automotive industry, which benefit far more people than only the drivers of private cars (e.g. road-based public transport, ambulances and fire engines are all based on similar technology. Therefore these services are more quickly available thanks to technological developments in the car industry and this benefits the whole of society).

You can explain what positive externalities are and give one example, and you can ask students to think of additional examples of positive externalities of car transport.

**ADDITIONAL MATERIALS:**

- Website of a movement to make the world car free: [http://carbusters.org/](http://carbusters.org/)
- Info about the contribution of cars to climate change and some of Greenpeace’s views on electric and hybrid cars and the future of the industry in English: [http://www.greenpeace.org/international/en/campaigns/climate-change/cars/questions-answers/](http://www.greenpeace.org/international/en/campaigns/climate-change/cars/questions-answers/)
CAR MANUFACTURING IN THE VISEGRAD COUNTRIES

This exercise develops students’ data analysis skills while also teaching them about the varying importance of the automotive industry in different countries. They are encouraged to consider the economic and social impacts this might have.

**Keywords:** economy, employment, cars.

**Age group:** 14-16 years.

**Time required for the exercise:** 20 minutes.

**Links to the curriculum:** geography, elements of economy

**Materials needed:** Printed worksheets, paper, writing tools.

**Goals of the exercise:** The student:
- Gains knowledge about the importance of car manufacturing in their country, the Visegrad region, the EU and world,
- Improves their ability to analyse graphs and understand context.

**Type of exercise:** pair work, group discussion.

**DESCRIPTION OF THE EXERCISE:**

1. First describe the main goal of the exercise, which is to analyse how the relative importance of economic sectors and their social benefits can differ in different parts of the world.

2. Put the students into pairs and distribute worksheets to each pair.

3. Ask the students to look at the graphs on the worksheets and discuss them based on the questions provided.

4. Ask the students to give feedback to the class on their answers to the questions.

5. Summarise the discussion and reflect on the importance of the automotive industry in the Visegrad countries.

6. Ask the group what they found interesting in the exercise and whether they learnt anything new. Ask if they find reading graphs easy or difficult. It might be good to tell them that the skill of reading and analysing graphs is likely to be needed in future life and work, e.g. in understanding financial processes, analyzing bank information etc.

**COMMENTS TO THE TEACHER:**

This exercise is based on working with statistics, so it is a good idea to be ready to give simple guiding tips on how to read the graphs if the group is less able in this area. For some of the students it will be relatively easy but some of them may need additional help. Make sure to give each of them enough guidance that they can join in with the group.

To help the group to analyze the information you can also demonstrate some interdependencies by posing questions: what are the consequences for the society? What are the links to the country’s budget? What are the consequences for the environment (e.g. scale of production etc.)?

You can provide the group with reasoning as simple as if more people are employed in the automotive industry in Slovakia then many of them must be producing cars for other nations in Europe etc. It is good to encourage the students to give some examples based on the data to illustrate their thinking processes.
This exercise is focused on regional considerations, so you can highlight that this is only one possible area of focus and that it is also good to consider global data.

**FOLLOW UP:**

You can ask students to search for other kinds of data (or data they are particularly interested in) related to different global issues like extraction of raw materials, carbon footprints etc. This kind of follow up can improve understanding of global interdependencies and highlight the existence of different perspectives like national, regional and global.

You can also ask an advanced group to analyze an issue by finding data relating to it and to give different arguments for and against some relevant idea or decision.

**ADDITIONAL MATERIALS:**

- The summary provided in the annex.
This exercise encourages students to think about the consequences of their everyday actions and the interdependencies that exist in the world. In general it will be possible to link most actions to car use/transport in some way, highlighting how dependent our society is on these things.

Keywords: consequences of everyday actions, climate change, car production.

Age group: 11 – 16 years.

Time required for the exercise: 45 minutes.

Links to the curriculum: geography, biology, civil society.

Materials needed: flipchart paper, marker pens.

Goals of the exercise: The student:

- Explores the causes and consequences of concepts on a global and local level,
- Engages in group discussion on both consequences and causes of actions in their everyday life.

Type of exercise: group work.

DESCRIPTION OF THE EXERCISE:

1. Split the students into groups of 4-5.

2. Draw a circle on a large piece of paper and write in the middle of it an everyday activity e.g. 'shopping at the supermarket', 'travelling by car', 'using fabric rather than plastic bags'. Prepare one of these for each group.

3. Ask each group to look for possible consequences connected with the activity in the circle.

4. Support the students’ discussion and encourage them to go into depth and be as precise as possible.

5. Ask the students to draw additional circles on the paper for each consequence and to draw a line linking them to their cause. See the Additional Materials section for an example diagram.

6. Facilitate this process by going from group to group and asking questions if something on the students’ diagram is not clearly defined.

7. Ask the groups to present their finished diagram to the class and compare their thought processes with that of other groups.

8. Lead a final joint discussion focussing on the differences between the suggestions from each group. Discuss the importance of knowing the relevant facts and being able to consider consequences. Discuss possible relationships between the consequences of actions at different levels.

COMMENTS TO THE TEACHER:

For students it is important to form arguments, think critically and see the interdependencies in the world. It is also useful for students to consider their everyday actions and their consequences.

It is very important to not only teach facts students but also how to look for causal connections between them. To be able to look at the relationship between what is going on around them critically, they need to know as many facts as possible.

If possible you should do this exercise yourself first, so that you can consider the connections students might make and therefore support them when they are doing the exercise. An example thought process might be: Shopping in hypermarkets - If you will do it, and you come by car this is creating demand for more parking places. More parking places may mean less space for sport facilities, public parks etc.
A good start for this activity would be a well-chosen short film or documentary about climate change. Teachers can also use this activity for other topics depending on their focus: biodiversity, environmental migrants etc. In this case they should choose a different sentence to go in the central circle.

**FOLLOW UP:**

If you would like to analyse concepts you can continue with the „Good life” exercise from the material.

The exercise titled ‘The ice face of Patagonia’ is a comprehensive exercise consisting of three modules, which encourages students to explore how they impact nature and other people in different countries through their everyday actions contributing to climate change, and search for ways for reducing such negative impacts. This exercise is be ideal to incorporate into project days or weeks on environmental and global education topics, but elements can be incorporated into the formal education as well. The description of the exercise can be downloaded: [http://www.ceeweb.org/wp-content/uploads/2017/09/Ice-face-of-Patagonia.pdf](http://www.ceeweb.org/wp-content/uploads/2017/09/Ice-face-of-Patagonia.pdf)

**ADDITIONAL MATERIALS:**

- More information about the methodology can be found in *Global education* written by G. Grada, D. Pike and D. Selby (1994).

Explanation of some connections from the example diagram:

- A consequence of the discovery of America was the introduction of potatoes to Europe.
- Potatoes in Europe meant improved and more diverse diet.
- Potatoes in Europe also meant the introduction of the potato beetle to Europe.
- Potatoes beetle in Europe meant DDT was used to protect the potatoes.
- DDT use affects people’s health.
This exercise allows students to find out for themselves how much space is being taken up by infrastructure dedicated to cars in their area. It encourages them to see the benefits of green spaces and consider how to make their neighbourhood greener.

Keywords: car, car space, green space, mapping, quality of life, urban planning.

Level of education/age group: 11-13 years and 14-16 years.

Time required for the exercise: 2 hours outdoor activity, 3 hours homework, 1 hour classwork.

Links to curriculum: geography, civic education.

Materials needed: a cadastral map or a Google Earth map (more info in Additional materials section below), A3 size paper, colouring pencils or pens.

Goals of the exercise: The student:

1. Understands the consequences of an increase in the number of cars, expansion;
2. Recognizes the difference between urban and green space,
3. Understands the principles of public participation in urban planning,
4. Improves skills in measuring in physical space and in sense of direction,
5. Understands the principles of green city planning in the context of sustainable development.

Type of exercise: outdoor activity and homework in small groups.

DESCRIPTION OF THE EXERCISE:

1. Put the students in small groups (3-7 people) trying to put together those who live near each other.

2. Set the students the task of creating maps of their local area, focussing on comparing the amount of public green spaces and car spaces. Green spaces include all parks, meadows, playgrounds, sporting areas, or places of leisure. Car spaces include all car roads, parking places, garages, and places where cars usually stay, and further all car services, car wash facilities and car shops.

Note that the area chosen should be considered by students to be their neighborhood – where they usually go to play or meet with other friends.

3. In order to create the map get students to measure the dimensions of local green spaces and car spaces using step counting. Ask them to record the width and length of these spaces in units of steps.

4. Ask students to calculate separately the total area of green space and the total area of car space. All green spaces and car spaces along with their areas (calculated in “square steps”) should be put on the simple, hand drawn map, prepared by students (as a background for it a cadastral map or a Google Earth map can be used).

5. Get the students to create a Map of a green neighborhood by creating a new version of the map they have made incorporating creative ideas about how to make their local area more green, safe and people-friendly. This can be a homework exercise.

6. At the next lesson get students to present their results and maps. Discuss with each presenting group what is more important for the quality of life of inhabitants, green spaces or car spaces. Let the students compare which spaces are in fact more supported by their parents, city councils and urban planners.
(Optional) Introduce the students to the principles of public participation and urban planning. This will require some preparation from your side.

**COMMENTS TO THE TEACHER:**

The more spread out our cities become, the more natural habitats and countryside they consume, meaning less wildlife, plants, and farms, and the more people have to drive cars to get around because distances are too far to walk or cycle. This means less mobility for those who cannot drive (such as kids!), less exercise, and more fossil fuel consumption. The use of fossil fuels such as oil, coal, and natural gas is causing major problems around the world: pollution, acid rain and global warming.

Urban planners try to make cities safe, healthy, and enjoyable places to live. They are especially concerned with public spaces that all citizens share, such as streets and parks. Environmental planners not only work to preserve and enhance the natural environment, they also seek to make cities and communities work with the natural environment. Cities and people have an impact on their surroundings, but they can also create new habitats for birds and animals.

For example, here are some suggestions of how to make a good plan for bike facilities (source: www.ibike.org):

- Provide continuous bicycle-friendly facilities wherever possible, especially in congested areas. Sidewalks are not desirable for most bicycle traffic due to the presence of pedestrians and other obstacles.
- Design bikeways and multi-modal facilities to meet a wide range of user needs. Design bikeway and walkway capacity to accommodate the anticipated use.
- Provide adequate signage for bikeways and paths. Directions for non-motorized users, notifications for motor-vehicles.

- Utilize park and playfield amenities in the bike system.
- Provide bicycle parking in commercial and recreational areas.
- Provide sufficient secure bicycle storage at transit centers, transit stops and park-and-ride lots.

Recommended sources for an introduction to public participation and urban planning:

Methods of transitioning a community to include more public transport, walking and cycling rather than car use: http://www.ibike.org/engineering/landuse.htm

A case study in bike-friendly suburban planning:


**FOLLOW UP:**

A selection of the best maps can be put up on a school wall and sent to representatives of the municipality as an expression of students' desire for change.

**ADDITIONAL MATERIALS:**

- Google Earth map: use the link https://earth.google.com/web on google chrome to get access to photographic maps of anywhere in the world.
- Cities of bicycles, the benefits, challenges and what is already being done: http://denmark.dk/en/green-living/bicycle-culture/the-cities-of-the-future-are-people-friendly-cities

"Bikes are the new Cars" by T. Young is licensed under CC BY 2.0
THE GOOD LIFE – WHAT DOES IT MEAN TO ME?

This exercise encourages students to consider the things that are truly important to them in life. It is interesting to note how prominent a role nice cars and other forms of technology and possessions play in their idea of the good life.

Keywords: values, good life, quality of life, living standards.

Age group: 11-13 years.

Time required for the exercise: 30 minutes.

Links to curriculum: civil society education, form tutor period

Materials needed: photos, postcards, pictures, A4 blank paper, marker pens.

Goals of the exercise: The student:

- Reflects on the different things of value in life and which of them are most important from his/her point of view,
- Strengthens communication capacities, e.g. reasoning, group discussion, description, use of figures of speech,
- Experiences discussion without right or wrong answers.

Type of exercise: group discussion, foot voting, discussion inspired by Philosophy For/With Children method.

DESCRIPTION OF THE EXERCISE:

1. Ask students to find and bring to class one photo, postcard or other picture which shows the “good life” from their perspective. Be careful not to define what kind of photo you expect. Ideally the photo should be a hard copy so that it can be put on the ground etc...

2. If you feel comfortable with the task doing so you can also bring your own photo and share it with students during the lesson. Please remember not to influence them be to influential with your own interpretation.

3. At the beginning of the lesson ask each student to show their picture to the others and say a few words about it. Possible questions to ask them are: what is on the photo? Why have you decided to choose this one? What “good life” can you describe based on this photo?

4. Ask everyone to put their photos on the floor and to group the photos.

5. After 5 minutes get back to the group and ask them for comments about the criteria for the groups. If this task proves difficult you can help the students by giving examples of possible groupings such as by location (e.g. by country or by type of place such a beach or mountains), whether they include people,
city or countryside, noisy or quite, crowded or a few people, with family and friends or alone etc.

6 Label the group categories.

7 Ask the students to vote by foot which category is the most important for each of them. Encourage them to go to a group of pictures even if their picture is in another group.

8 Organise a short discussion of each category in small groups. Supporting questions might include e.g. for crowded vs. a few people: do you prefer to play with others or alone? For country or specific types of place: do you have any dreams about living somewhere else? Do you prefer seaside, mountains, lakes or it doesn’t matter that much. For noisy or quiet: where you prefer to spend your free time in the city or outside the city? What are the main differences? etc.

9 Get each group to give feedback to the class answering the question: what is the most important factor in the good life from your point of view? In summing the discussion up remember to value all types of answer and not to judge which answers are better than others even if you have your own point of view.

COMMENTS TO THE TEACHER:

The proposed exercise is inspired by the Philosophy For/With Children educational method, so the role of the teacher is to catalyse the group in coming up with ideas and to encourage students to explore their own understanding of the world. If you are interested in the method you will find additional information in the additional materials section below.

Depending on if they are advance in the debating skills various issues you can decide to give them more space, make the plenary discussion and even ask one of the volunteer for giving the summary.

If the group is not very advanced you can help them with additional questions and facilitation, but please do not suggest answers to the students and also try not to judge their answers by commenting that they are right/wrong, good/bad etc.

If you decide to show your own picture please present your idea without influencing the group with your point of view, only give it as one possible option.

This exercise is good to conduct as second step after the lessons scenario proposed or exercises proposed in this material.

Thanks to that you will see how information about the consumption, raw materials extraction and car pollution change the students’ mindset and you can also question their ideas based on your earlier discussions.

If you do not want to set homework before the lesson you can also collect photos and pictures yourself and start with the activity: find one photo that looks like it is good life from your perspective.

FOLLOW UP:

You can ask students to describe how they imagine the good life by drawing a picture (as well as finding a photo or postcard) or by writing an essay on the topic after the discussion.

Photos and pictures could also be put together as a collage in the school’s gallery.

If the group is interested you can also analyse the Quality of Life Index methodology using information about your country.

ADDITIONAL MATERIALS:

- Article on Philosophy For/With Children: Participatory education: Philosophy for Children, Clive Belgeonne
  


  Quality of Life Index: [https://www.numbeo.com/quality-of-life/rankings_by_country.jsp](https://www.numbeo.com/quality-of-life/rankings_by_country.jsp)
This exercise investigates some possibilities for the future role of cars in society and allows students to explore the implications each of these scenarios would have for our everyday lives.

| Keywords: car, infrastructure, public transport, future, everyday life, transport. |
| Age group: 11-13 years and 14-16 years. |
| Time required for the exercise: 30 minutes. |
| Links to curriculum: geography, elements of economy, civil society education |
| Materials needed: writing tools, paper, printed scenario descriptions for the groups. |

**Goals of the exercise: The student:**
- Recognises that different alternatives exist for organising transport in the economy,
- Improves critical thinking skills, learning to absorb and challenge different views and approaches,
- Improves systems thinking,
- Gains more knowledge on various aspects of car transport.

**Type/method of the exercise: group discussion followed up by joint discussion in the class.**

**DESCRIPTION OF THE EXERCISE:**

1. Explain the exercise to the students and outline its goals. Ask if they have any comments. It may help students to participate confidently if they know what to expect.

2. Divide the students into groups and get each to discuss one transport development scenario for the coming 30 years. Three scenarios are provided that outline a future with more cars, with no cars at all and with just electric cars. These scenarios are described in detail in separate worksheets.

3. Allow 10 minutes for discussion. Some possible leading questions for about the scenarios are:
   - How could it change people's daily routines?
   - How would it change people's life choices, e.g. in selecting schools (without having private cars, would all students go to the same schools?) or the going on holiday?
   - How would it change the density of the road infrastructure, and the number of cars?
   - How would it change the infrastructure like the fuel stations or the electronic chargers?
   - How would it change the urban planning (e.g. to make basic services like shops, accessible in the neighbourhood, or what to change the parking lots to under a private car free scenario)?
   - What other transport services the various scenarios could trigger to help the people (e.g. without private ownership the shops might extend their house delivery services, cargo taxis could become more prevalent to help transporting heavier goods, car renting could become prevalent)?
• How would it impact the environment? Do not only think of air pollution and climate change, but also the impacts on nature e.g. through the loss of habitats as a result of roads or the killing of animals on the highways.

4 Ask all the groups to give feedback on their scenario. Ask them whether it was difficult to imagine the scenario and answer the questions. Find out what was most interesting about the scenario for them and what took the most time to think through.

5 Follow the feedback with a joint discussion. Ask the students which scenario they prefer, using the foot voting method if you wish. Make sure to inform the group that their choice should be based on preference not scientific data.

6 Encourage the group that chose each scenario to discuss their reasons and come up with their best arguments for the scenario to present to the class.

7 After the arguments have been presented highlight that it is not only important to express them, but also to link them together and provide counterarguments to those who disagree. Observe whether students look at each other when discussing an argument or answer mostly to you and encourage them to answer to the person making the argument rather than you.

8 Summarise the discussion by highlighting that the future is not clear and depends on where technological development leads, how policies evolve and businesses develop. Note also that sustainability is a big challenge facing us currently.

9 Collect feedback from the group on the exercise and ask about their interest in the topic.

COMMENTS TO THE TEACHER:
You might need to explain in the beginning, what a scenario means (a description of possible actions or events in the future).

The data provided in the three scenario descriptions are exaggerated, to make the discussion and the drawing of differences a bit easier. For instance of course future technological advances could mean that electric cars have a much longer range than 500 km.

There are also several aspects, which influence the development of transport and technological alternatives to petrol/diesel cars. For instance global taxes on fuel will impact how much people and companies favour old technologies or look for alternatives. Electric cars are made with some materials which are geopolitically more difficult to have long term access to (mined in few countries with less stable political regimes, which could make their access more problematic under changing political circumstances). These aspects could be also discussed in a receptive class.

FOLLOW UP:
You can ask students to look up interesting articles on electric cars and present them to the class.

ADDITIONAL MATERIALS:
▶ Article on the electric car revolution in English: https://www.bloomberg.com/news/articles/2017-07-06/the-electric-car-revolution-is-accelerating

▶ Article on how to reduce traffic congestion and related stress in English: http://saudigazette.com.sa/article/512298/Opinion/Local-Viewpoint/traffic

▶ Article on human rights issues surrounding the mining of rare earth metals used in cars e.g. coltan from which tantalum is derived in English: http://web.mit.edu/12.000/www/m2016/finalwebsite/problems/humanrights.html

▶ Article on rare earth elements in electric and hybrid cars and problems related to difficulty of mining rare earth elements in English: http://science.time.com/2013/12/20/rareearths-are-too-rare/
- Article on how fuel prices affect electric vs standard vehicle sales in English: https://www.forbes.com/sites/michaellynch/2016/01/14/will-low-gasoline-prices-whipsaw-the-auto-industry-again/#1511d75a7175


- Info about the contribution of cars to climate change and some of Greenpeace’s views on electric and hybrid cars and the future of the industry in English: http://www.greenpeace.org/international/en/campaigns/climate-change/cars/questions-answers/
**“TRUE FREEDOM IS TO CONSUME LITTLE” – JOSE MUJICA CREDO**

This exercise introduces students to the arguments of Jose Mujica and the issues surrounding consumption. It therefore allows them to find out about the wider problems leading to resource depletion, climate change, exploitation etc. which the current form of the global car industry is one part of.

- **Keywords:** consumption, happiness, freedom, choice, ideas, values.
- **Age group:** 11-13 years and 14-16 years.
- **Time required for the exercise:** 45 minutes.
- **Links to curriculum:** civil society education, form tutor period, geography
- **Materials needed:** Computer with projector and speakers, post-its, flipchart/whiteboard and marker pens.
- **Goals of the exercise:** The student:
  - Understands the complexity of consumption issues,
  - Recognizes Jose Mujica and his story of being the poorest president in the world,
  - Discusses the de-consumption model and its influence on the environment and the economy.
- **Type of exercise:** multimedia (video), group discussion inspired by the Philosophy For/With Children method, identification of key words.

**DESCRIPTION OF THE EXERCISE**

1. Tell the students that at the beginning of the lesson special guest will be speaking to them from a short clip. Jose Mujica is the former President of Uruguay and he was one of the most famous globally because of his habits and the policies that he introduced in the country. Ask students how they imagine him: what he wears, where he lives, how old he is, etc.

2. Show the group the short speech of Jose Mujica from the movie entitled HUMAN with subtitles.

- Clip with HUNGARIAN subtitles: [https://vimeo.com/145521588](https://vimeo.com/145521588)
- Clip with POLISH subtitles: [https://www.youtube.com/watch?v=1xZVuKEnXic](https://www.youtube.com/watch?v=1xZVuKEnXic)
- Clip with Czech subtitles: [https://vimeo.com/140111498](https://vimeo.com/140111498)
3 Ask the group for their feedback on his speech. What kind of questions would they like to pose to him?

4 Get each student to write at least one question on post-it.

5 Give the students some more information about Jose Mujica. You can refer to the articles in the additional materials section below.

6 Ask the students to discuss in pairs or small groups whether any of their questions have now been answered. If not, they can discuss them with the whole group or check the answers at home.

7 Ask the group to list the keywords that Jose Mujica uses in his speech, e.g. consumption, time, life, money, happiness, small things, thinking, growth etc.

8 Focus on the word ‘consumption’ and discuss with the group its definition. Talk about the causes and consequences of increasing consumption and the possible understandings of the concept by the speaker, by the students and by their parents. You can highlight that all of us are consumers and we can’t all just stop immediately, but it is good to think about what you really need and what you are just being persuaded to buy. Also discuss whether never ending growth of consumption is possible. The differences in opinion on this are huge, remember to give the group space to refer to their own experiences and ideas and not to enforce your own.

9 Sum up the discussion by highlighting that there are many ways of understanding these difficult global issues and how they link together. It is up to us to decide where we would like to be in the future and how we imagine our lives in 50 years time.

**FOLLOW UP:**

For homework you can ask the class to prepare other quotes from different well-known people on consumption/ freedom or any other topic to continue the discussion and find different arguments.

Students can also find out what important leaders speak about in their crucial speeches, e.g. Leonardo DiCaprio as a UN Messenger of Peace.

**ADDITIONAL MATERIALS:**

- Jose Mujica speech from “Human” movie
- Clip with HUNGARIAN subtitles: [https://vimeo.com/145521588](https://vimeo.com/145521588)
- Clip with POLISH subtitles: [https://www.youtube.com/watch?v=1xZVuKENXic](https://www.youtube.com/watch?v=1xZVuKENXic)
- Clip with CZECH subtitles: [https://vimeo.com/140111498](https://vimeo.com/140111498)

**COMMENTS TO THE TEACHER:**

At the beginning the group may find it difficult to brainstorm interesting questions. If so you can propose to them some pre-prepared open questions and have them vote for the two or three most interesting, e.g.

- What does freedom mean when you are powerful?
- How does buying things influence your feeling of freedom?
- Is it possible to govern a country without certain attributes of power and wealth?
- Can you be powerful and have few possessions? How would this influence your status? etc.

If you find the words in the clip too difficult for the age group you can analyse the speech in parts or rewrite the text and analyse it, defining words such as “advocating”, “sobriety”.

The discussion about “consumption” can be open or slightly moderated by adding new aspects or new information. When you give data, please ask the group to make their own interpretation and use the data in their arguments.
List of articles about Jose Mujica:

PL: [http://wiadomosci.gazeta.pl/wiadomosci/1,114871,15419551,Jose_Mujica__Chcialbys_miec_takiego_prezydenta__.html](http://wiadomosci.gazeta.pl/wiadomosci/1,114871,15419551,Jose_Mujica__Chcialbys_miec_takiego_prezydenta__.html)

HUN: [https://hu.wikipedia.org/wiki/Jos%C3%A9_Mujica](https://hu.wikipedia.org/wiki/Jos%C3%A9_Mujica)

CZ/SK: [https://www.aktuality.sk/clanok/305490/najchudobnejsi-prezident-plytvame-so-zivotmi-a-slobodou/](https://www.aktuality.sk/clanok/305490/najchudobnejsi-prezident-plytvame-so-zivotmi-a-slobodou/)

Link to Leonardo DiCaprio speech as UN Messenger of Peace:
CIRCULAR ECONOMY, A NEW ECONOMIC APPROACH

This exercise teaches students about the alternative to our current economic model: the circular economy. It highlights the issues with our current ‘throwaway economy’ using the example of toys, even though the issues raised relate to our use of all products, including cars.

Keywords: industrial revolution, economy, environment, consumption, products, everyday life.

Age group: 14-16 years.

Time required for the exercise: 30 minutes.

Links to curriculum: history (linked to the industrial revolution), geography.

Materials needed: Paper, writing tools, beamer for projecting the slides, printed and cut out exercises.

Goals of the exercise: The student:

- Recognises that different economic models exist and it is still changing today, how people (and economists) think about economy,
- Gains more knowledge on the functioning of the economy and its impact on the environment.

Type of exercise: group work, frontal teaching, individual exercise.

DESCRIPTION OF THE EXERCISE:

1. Explain to the students that the goal of the exercise is to explore the different ways our society and economy can work, for instance in the way we make and use products. The different alternatives greatly impact people and the environment in different ways. You can also briefly present the exercise and ask the students if they have any comments on it.

2. Divide the students into groups. Give each group one of the printed worksheets with the images of pairs of things (a wooden doll and a plastic doll, a wooden die and a plastic die, a wooden puzzle and a plastic puzzle, a rag ball and a rubber ball, a wooden doll house and a plastic doll house, lego and wooden building blocks) and the list of questions.

3. Ask the students to write about a few differences between how the economy works now and how it used to work a few centuries ago before the industrial revolution based on the example of a child receiving toys based on the questions on the worksheets:

- How many toys does a child usually receive a year today? How many toys do you think a child used to receive a long time ago? Why do you think there is a difference?
- How long do you use your toys for? Can you give an example of the kinds of toys you have used regularly for several months or years? Do you think it was similar centuries ago? If not, why not?
- Think of your favourite toy from now or when you were younger and describe what it is made from. Were these materials also regularly used centuries ago? What were the toys usually made from centuries ago?
- How are toys usually made nowadays (made by hand or by machines in factories)? How were toys usually made centuries ago (made by hand or by machines in factories)? Which toys are more complicated to produce, which one requires more specialised knowledge?
- What happens to the toys you do not like or use any more? What do you think happened to unused toys centuries ago?
- Based on the ideas collected, what do you think are the environmental impacts of toys nowadays? What do you think were the environmental impacts of toys centuries ago?
Ask the groups to give feedback on the six points by summarising their answers to each question to the class.

Lead a group discussion on the students’ findings. During the discussion you can touch upon some of these aspects under the six points: You can discuss with the students the striking difference between how many toys a child today receives, and how many toys a child received in his/her life centuries ago. This could be the result of:

- The availability of plentiful cheap toys nowadays,
- Some toys today breaking more easily,
- The constant appearance of newer and more attractive versions of lego, dolls, etc. in shops,
- Advertisements suggesting that we should buy more,
- The tradition of giving presents to everyone within an extended family on birthdays and other occasions.

You can discuss the difference in the length of time that toys are used for nowadays compared to centuries ago (e.g. because children receive many more toys today, they break more easily, etc. as collected above).

You can discuss that nowadays many toys are made from plastic, and also include electric parts and batteries (containing hazardous materials). Even if they are made from wood, they are often painted or covered with preservative materials to keep them in good condition for longer, which makes it more difficult to compost them. In contrast in the past toys were usually made from natural materials, like wood, leather (e.g. footballs), metal parts, textiles or porcelain (e.g. dolls’ heads). Even the hair of baby dolls was made from real hair instead of plastic.

You can discuss the way toy production has changed over the centuries (from made by hand to produced in factories), and how many different types of knowledge or technology are required to manufacture modern toys nowadays (e.g. production of plastic and electronic toys vs. carved wooden toys).

You can discuss that while donation, passing on to other family members or reselling can prolong the life of toys today, they still end up as waste much more quickly than they used to centuries ago.

You can discuss that toys used to have a much smaller environmental impact centuries ago than today because: there were many fewer toys in the world (not only altogether but also per capita), they were made from natural materials, much less energy was used for their production, they were less harmful for the environment when they were thrown away as they could degrade or compost, (while plastic waste does not degrade in nature, and just a very small percentage of it is recycled).

Present the concepts of the throwaway and circular economies to the students (you can use the slides provided in the annex as a visual aid).

You can discuss that while donation, passing on to other family members or reselling can prolong the life of toys today, they still end up as waste much more quickly than they used to centuries ago.

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The technological breakthroughs of the industrial revolution and vast amounts of easily accessible energy from fossil fuels like coal, oil and gas, have transformed the daily lives of people in many ways. More and more products are produced using an increasing amount of resources, and the majority of these things quickly end up in landfill. Our current economic model is also called a “throwaway economy”, because we produce, use and throw away things, without duly considering environmental issues. However, mainly due to the vast negative environmental impacts (loss of forests and other habitats, climate change, too much land fill, air and water pollution, etc.), researchers, governments and businesses have looked for other approaches and solutions.

a. Thus they invented the concept of the circular economy, in which we reduce waste, we use products longer, we repair them, we upgrade them, we resell them, we recycle them. This is partly about how we design products (to last longer, to be upgradable).

b. In a circular model one person’s waste can become another person’s resource. For instance,
one company collects plastic fishing nets from the seas, which end up as waste after they are torn or lost by fishermen. This company collects this waste and turns it into the plastic backing of carpets.

c. But the circular model is also about how we use and own things. It might actually be better not to own some things (such as cars, tools like a drilling machine, a washing machine, even if it stands in our own bathroom), but only to rent them and pay for the actual use, while the company which owns them takes care of the repairs.

d. In a circular economy we also use renewable energy instead of fossil fuels that cause climate change, because we strive to decrease environmental pollution and other negative impacts.

e. Referring back to the example of the toys, we have many more of them nowadays, which requires much more energy, resources and knowledge to produce, and this is all wasted if we quickly throw them away. We also have a much bigger impact on the environment. Because of all this we need to find ways to use fewer products, use them longer, (sometimes in other forms when we recycle materials), and use more environmentally friendly products, materials and types of energy.

Give the students worksheets for the pairing exercise on the example of mobile phones. Ask them to work out which points describe a circular and which a throwaway economy and also to pair corresponding points about how mobile phones are produced and used in the throwaway economy and the circular economy. Either you can cut out the tables in advance, or there is a muddled up version in the annex so that students can cut it up and order it themselves.

The correct table is:

<table>
<thead>
<tr>
<th>IN A THROWAWAY ECONOMY:</th>
<th>IN A CIRCULAR ECONOMY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The mobile is not built for longer lifetime and durability. It easily breaks or goes wrong.</td>
<td>The mobile is built to withstand shocks, e.g. dropping from 2 meters without breaking.</td>
</tr>
<tr>
<td>The mobile has embedded elements, like a camera, which cannot be upgraded, i.e. they cannot be changed or improved during the life cycle of the mobile phone. If the owner wants to take better photos with the mobile, they need to change the whole device.</td>
<td>The mobile has elements (like a camera), which can be replaced to better ones when newer technologies emerge. Thus the owner of the mobile phone can replace the camera to a better one without changing the whole mobile. This is called modularity.</td>
</tr>
<tr>
<td>The mobile cannot be easily taken apart, and it is more difficult to repair. Often parts are glued together.</td>
<td>The mobile can be easily taken apart, spare elements and even repair manuals are provided so that experts or even the owners themselves can fix the mobiles, e.g. replace a broken screen.</td>
</tr>
<tr>
<td>Sometimes not even the battery can be taken out from the mobile. If the battery goes wrong, the whole mobile needs to be replaced.</td>
<td>All elements, including the battery of the mobile can be replaced easily if they go wrong.</td>
</tr>
<tr>
<td>Older, unused mobiles quickly end up as electronic waste.</td>
<td>Unused mobiles are collected, repaired or upgraded and are resold for other consumers.</td>
</tr>
<tr>
<td>Electronic waste from mobile phones is often not treated properly and safely, which is dangerous to the environment and human health.</td>
<td>Electronic waste from the mobile phones is recycled in order to use as much of the resources as possible, and all waste is treated properly to minimise environmental impacts and prevent harm to human health.</td>
</tr>
</tbody>
</table>
**COMMENTS TO THE TEACHER:**

Even though no national economy has switched to circular economy so far, this concept is getting more and more acknowledgement and support by decision makers and businesses alike. As consumers also benefit from various aspects of the model, they also push for more durable products, possibilities for repair, improved environmental performance which leads to less pollution, etc. With this exercise the students can gain more knowledge on the ongoing major trends in the world, which will help them to decide about their own professional career. New knowledge and skills on product design, business development, IT solutions or research into new technologies will be valuable for finding jobs in the coming decades and building a circular economy.

**FOLLOW UP:**

You can ask students to discuss with their parents those features of their mobile phones that are given in the exercise, and describe in a few sentences how those mobile phones already contribute to a circular economy, and collect suggestions on how they could contribute to it better.

You can also ask students to do something in the spirit of the 6R rules, see the exercise below

**ADDITIONAL MATERIALS:**

- Introductory online course about the circular economy in Hungarian: [http://circularhungary.hu/hu/mi-a-korforgas-gazdasag/](http://circularhungary.hu/hu/mi-a-korforgas-gazdasag/)
- Short animated video about the concept of circular economy in English: [https://www.youtube.com/watch?v=zCRKvDyyHml](https://www.youtube.com/watch?v=zCRKvDyyHml)
- Short animated video about the concept of circular economy in English with Hungarian subtitles: [https://www.youtube.com/watch?v=ulYxi2BoDi0](https://www.youtube.com/watch?v=ulYxi2BoDi0)
- Introduction to the circular economy by the Ellen MacArthur Foundation: [https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept](https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept)
- Worksheet: Worksheet in the annex
Gold is used for many purposes, including for electronic devices, like smart phones or cars even if in small quantities. This exercise focuses on the social and environmental impacts of the extraction of gold, and looks at the alternatives to reduce the negative impacts.

**Keywords:** gold, fair trade, consumption.

**Age group:** 14-16 years.

**Time required for the exercise:** 20 minutes.

**Links to curriculum:** geography

**Materials needed:** printed work sheet.

**Goals of the exercise:** The student:
- Gains knowledge about fair trade and the aspects of mining,
- Improves critical thinking about the various conflicting interests in the economy (like between employers and employees),
- Improves argumentative skills for advocacy.

**Type of exercise:** role play in pairs.

**DESCRIPTION OF THE EXERCISE**

1. You can start with introducing the goals of the exercise, and ask students if they have any comments on this.

2. Ask students if they have noticed the fair trade logo on any product (often visible on chocolates, tea, coffee, etc.). You can collect ideas on what this logo could mean in practice and by that outline the concept during the discussion.

3. Write some important aspects of fair trade (fair wages, respect of labour rights (like working hours, leaves), providing safety equipment, protecting the environment, financially supporting the local community for instance to build schools) on the blackboard.

4. Ask the students to from pairs, and distribute the worksheets to them, which describe the role they play: 1. the miner, who wants to switch to fair trade certified mining, and 2. the representative of the mining company, who rather prefers to keep things as they are (not getting fair trade certification). The pairs could argue for five minutes trying to convince the other.

After the pair work, you can collect arguments from the students for both sides, or even ask volunteers to play the role game in front of the others. If so agreed, anybody from the class could support the two sides by suggesting additional arguments to the debaters.

**COMMENTS TO THE TEACHER:**

Fair trade is based on 10 principles, which include among others fair payment, good working conditions, no child labour or forced labour, respect of the environment in the production, and creating opportunities for disadvantaged producers, like family businesses.

**ADDITIONAL MATERIALS:**

- Read more about the 10 principles of fair trade: [http://wfto.com/fair-trade/10-principles-fair-trade](http://wfto.com/fair-trade/10-principles-fair-trade)
- More information about fair trade gold in English: [www.fairgold.org](http://www.fairgold.org)
GET FREE FROM THE CAR

This exercise allows students to think about ways of persuading people to move away from a car-dependent lifestyle. It therefore also encourages them to consider whether they can make changes in their lives to reduce car use.

Keywords: car, advertisements, car free, lifestyle, everyday life, creativity.

Age group: 11-13 years and 14-16 years.

Time required for the exercise: 45 minutes.

Links to curriculum: civic education, ethical education, art education.

Materials needed: Paper, writing tools.

Goals of the exercise: The student:
- Understands what ‘good life’ really means (in contrast to social status),
- Understands alternatives to the current situation (e.g. car free society),
- Improves their critical thinking skills,
- Is helped to make choices,
- Is encouraged to take responsibility.

Type of exercise: work in small groups (3 to 7 students).

DESCRIPTION OF THE EXERCISE:

1. Divide the students into small groups.

2. Explain that their task will be to create positive, creative, intelligent and/or funny ads promoting a car-free lifestyle. Cycling, walking, jogging, scootering, skateboarding, rollerskating or public transportation can be used as the subject of the ads. Ads should motivate the public to change their car dependent lifestyle to a more green, healthy and sustainable one. Students can just write down the text for the ads or they can draw it or even make some graphical arrangement for their ads using some computer graphic programme.

Example:
As the example can be taken advertisements, used on coaches in Slovakia:
“Bus is the best place to meet your future girlfriend”.
“Traffic jam? 50 cars, or one bus? “

COMMENTS TO THE TEACHER:

We see them everywhere, by motorways, on streets, on PC and phone screens, on TV and in magazines: advertisements for car. Sometimes they are funny, sometimes they are boring. Advertising uses misleading promises of desired results to convince customers to purchase a product. Advertisers try to convince consumers that purchasing a product will make them smarter or more attractive. Advertising focuses only on the positive aspects of a product, never on the negative ones and they also present products as better than they actually are. It is easy to make anything look good with tools like Photoshop.

Advertisers often use a young, attractive person to deliver their message, as attractive people are generally accommodated and trusted more. Often a famous person will appear in an advertisement stating how good the product is. Ads or gifts displaying a particular lifestyle make you associate a product or brand with that lifestyle. Identifying with that lifestyle, you open up to the possibility of wanting the product. There are aspects of our life that we feel insecure about. We may deep down believe we are not worthwhile, not attractive enough, etc. Advertisers use play on this insecurity to try and get us to buy things we don’t really need.
So, it is time to compete with better ads on better things :-) 

+FOLLOW UP:

After the ads are finished have the students vote on which is the best. These can be designed, printed or painted by hand and put on school wall, as well as some available public spaces. They can also be published in a school magazine, local newspapers, etc.

+ADDITIONAL MATERIALS:

- Website of a movement to make the world car free: http://carbusters.org/
**6R RULES – WHAT 6R MEANS? HOW TO START IMPLEMENT THEM FROM NOW ON?**

Description of 6R rules:

1. **RETHINK**

The actions which we encourage you to take are based on specific knowledge about the world and are aligned with personal values. They are meant to inspire reflection. **Think critically!** Analyze your everyday consumer choices. The actions of individuals add up and have a profound influence on the world we live in.

- Have you ever thought about why almost immediately after the launch of a new version of a smartphone the media are already speculating about when a new model will be introduced? Is technological progress really that fast?
- Why is it so difficult to find somebody who can repair a broken washing machine or to get a warranty for the repair? Why is the cost of the repair almost as high as the price of a new product? Does this make sense?

2. **REFUSE**

3. **REDUCE**

4. **REUSE**

5. **RECYCLE**

6. **RECOVERY**

- Why is it that a TV or a printer will break down right after the warranty period has ended?
- Why do clothing companies impose a new fashion trend every season and urge us to throw away old clothes and buy new ones?

The answer is quite simple. This is the power of marketing, the role of which is to give impetus to the sales spiral. Companies want us to buy more and more. But have you ever thought about the impact this has on the environment, on the countries where the raw materials for these products are produced and on our social interactions?

The UN has demonstrated that in recent years the world has been producing **over 20 million tons of electronic waste per year** and this number keeps growing. According to the estimates for 2017, the level of e-waste could exceed **50 million tons** (a weight equal to about 280 thousand large passenger planes). This is the e-waste from 2017 alone! Most of it is dumped outside Europe and the USA. Even though this procedure is illegal, such
dumps are piling up in Ghana, India, Pakistan, China or Nigeria.

Have you ever:

- given an expensive gift to someone hastily instead of giving them your time and attention e.g. go for a walk or have a conversation?
- bought something you didn’t really need but you were tempted by an advertisement or felt the pressure of people around you?
- thrown out or stopped using an appliance soon after buying it, even though it was still working well?

The world is constantly pressuring you to earn and spend money. Very often the media will imply that this is the only indicator of success or happiness. Think about whether you agree with this idea.

Consumption and economic growth tend to be seen as an answer to all global problems. Take for example the statements made by the then American president, George W. Bush who after the attacks on the World Trade Center tried to raise the spirits of the Americans by encouraging them to buy more.

Marketing is ubiquitous. The advertisement for the shoes that you looked up once on the Internet will “follow” you on every website you click on in the subsequent days to encourage you to buy them. Special offers add fuel to the sense of urgency. Product placement is present in almost every TV series, film and music video. Stars and celebrities support different brands because if you like them you will be more willing to buy those products. Do you really think that it was Kanye West himself who designed the shoes for a well known brand that his fans spent four days camping in front of the store to buy? Perhaps it was only a marketing trick?

Most consumers will rarely ask such questions. What we encourage you to do, is to think about where the products you use everyday come from and what their influence on the natural environment and the people who are engaged in their production is. Get to know campaigns about such products as chocolate, tropical fruit, clothes, wood and paper or shoes. They are based on solid knowledge about the production processes, especially in the countries of the global South, and their impact on the local population. These campaigns have resulted in the creation of Fair Trade.

**What can you do right away?**

- Be careful not to become a passive cog in the gears of the gigantic sales and profit machine. Try to avoid that role.
- Approach advertisements critically.
- Treat fashion with a certain distance. Perhaps one cool gadget or a set of clothes will be enough? It might be worth it to swim against the tide and be critical of fashion trends.
- Decide for yourself what and when you will buy. Verify the authenticity of your needs and do not fall for artificially created ones.
- Do not let things take away your freedom and time.
- Pay attention to the country of origin of a product. Ask for the details of production in the store (e.g. the presence of toxic substances or child labor).
- Buy local products to reduce the carbon footprint linked to transportation.
- Watch interesting films on the **Story of Stuff**.
- Buy products which have environment friendly and fair trade certificates, such as Fair Trade, Fair Wear or GOTS.

### 2. REFUSE

A critical approach to consumption has become trendy recently. Minimalism, slow-life, slow food and work-life balance have gained reasonable popularity in some circles. Lifestyle magazines publish stories about people who have given up working for corporations and moved out of the city to start farming and live in harmony with nature.

Not everybody is willing to take such radical steps, but we should all be aware of the price
of our consumption, including dangerous climate change, the degradation of the environment and exploitation of local communities, which have been described on our map.

That is why we encourage you to try **DECONSUMPTION**. This is an attitude of conscious limitation of your shopping and the use of different goods. It allows you to appreciate non-material values, relationships with people and spiritual experiences (such as silence, fresh air, nature, friendship, rest, cooperation and the ties with the local community, culture).

All over the world there are people and organizations who refuse to accept that development should be understood as never-ending economic growth. This is the **DE-GROWTH movement** which calls for the acknowledgement of the fact that Earth has limited resources (water, forests, flora and fauna, raw materials, minerals and rocks) and so constant economic growth is not only unsustainable, but also impossible to maintain in the long run. What is more, economic growth does not make us automatically happier.

**What can you do right now?**

- Before you buy another gadget or a clothing item, think about whether you really need it. How long and how often will you be using it? Perhaps you already have enough at home? Do you really need a twentieth T-Shirt? Or a new phone every year?
- Producers of electronic appliances tempt us with new solutions. Do not get caught up in this game. Newer models of phones are less resilient than the old ones and they become outdated even faster. Be aware that everything is calculated so that you spend as much money as possible.
- Be critical towards fashion. Do not be a blind follower.
- Do not be fooled by promotions! Very often they encourage you to buy things you do not really need.
- Limit shopping. Even groceries can be made every other day. You will save time and become better at planning.

**3. REDUCE**

Limit consumption by planning your shopping in advance. Think about how many things you really need. Buying less will not only save you money but also cut down your use of resources, such as water, energy and transport as well as reducing waste. This allows you to reduce your negative impact on the environment.

Do you know what a **carbon footprint** is?

This is the total of all the greenhouse gases (carbon dioxide, methane and other) which are emitted to the atmosphere due to human activity. A carbon footprint can be calculated in relation to people, products, services, companies, cities or states. There are websites with calculators that will allow you to estimate your carbon footprint based on where you live, the kind of transport you use, what you buy and where you go for vacation etc. The carbon footprint for an average Pole/Slovak/Hungarian/Czech equals 8000/6200/4200/9400kg while the global goal is to reduce this to 2000 kg of CO₂ per person. Calculate your carbon footprint and think about what you can do to reduce it.

**What can you do right now?**

- Think whether you need to be online all the time. Try turning off all the electronic appliances for a few hours or even a few days (computer, phone and TV). See for yourself how that feels and what it allows you to accomplish.
- Think about whether having new objects really brings you happiness. Wouldn’t it be better to spend time with friends and develop your passions?
4. REUSE

Before throwing out a product, think whether you could still use it. Jars can be used to store food, ice cream containers to freeze food in, an old T-shirt can be used as a pajamas. Reuse can also be practiced through passing on to others objects which we no longer have use for, but which are still working e.g. a used sofa, left-over curtains after a room redecoration, a TV set, clothes, books, CDs etc. Try passing them on to your family, friends, people in poverty or organizations such as Caritas or the Red Cross.

What can you do right now?

▶ Use pages printed on one side for making notes.
▶ Use jars for home made preservatives or plastic containers to store small items instead of buying new ones.
▶ Give away clothes, books and toys to family, friends and people in need. It is especially worthwhile to share clothes you have outgrown with someone younger.
▶ Organize or take part in swap parties – this way you will get new clothes for free.
▶ Exchange books, magazines and films with your friends to avoid many people buying the same things.

5. RECYCLE

If you cannot eliminate a waste or reuse it, try recycling. The materials which can be recycled in particular are: glass, plastic and paper, but also noble metal elements in electronics. That is why it is so important to use special recycling containers. Pay particular attention to the ones for electronic waste, batteries and fluorescent light bulbs. Not only do they enable the recovery of raw materials but they also prevent the permeation of the groundwater and soil with toxic substances, such as heavy metals, harming people and nature.

Recycling materials from products for new and even more valuable purposes is called upcycling. The fashion for upcycled jewellery, furniture and other daily use products has also reached this country. Upcycling is a form of expressing your views, opposing wasting materials and a form of creative fun at the same time.

What can you do right now?

▶ Recycle: paper, glass, plastic waste, metals, clothes. Remember that all plastic packaging can be recycled (not just bottles).
6R rules – what 6R means? How to start implement them from now on?

- Upcycle materials, like nespresso capsules into jewelry, or an unused sock into a bunny.
- Squash plastic bottles before throwing them out.
- Recycle electronic waste and batteries separately, never mix them with regular waste.
- If possible make compost, segregate organic waste.

**6. RECOVER**

Why do so many products break right after their warranty period has ended? Why nowadays in many cars is it impossible to change the light bulb of the reflector and why has repairing fridges or washing machines become uneconomical? A few decades ago people used appliances which would work well for many years and if they broke down they could be repaired. It was normal to repair household appliances, shoes or clothes. Companies competed by offering resilient products which did not break easily. This changed when companies realized that they could boost sales through planned obsolescence or making their products difficult to repair.

**Planned obsolescence** is a strategy of designing products in such a way that they have a limited use time. Usually they will break down after the warranty period has ended. When we try to repair them, it turns out that the repair itself will cost almost as much as a new product. This is another deliberate action of producers. They do not provide exchange parts and design their products in such a way that even a small amount of damage requires an exchange of a whole panel or a large fragment of the appliance. The result is that for consumers it is more profitable to throw away an old appliance and buy a new one. Hardly anybody reflects on the disastrous consequences of this for the environment.

Organizations which deal with responsible consumption are fighting for the recreation of a system of product repair and for the introduction of a law which would prevent the production of multiple different products with the same function. A tangible success in this area has been the progressive introduction of a universal charger for electronic appliances e.g. smartphones.

There are also innovative initiatives in the area of sustainable consumption such as the Fairphone. Not only are the consumers informed about the supply chain of assembly parts or even raw materials used in the product, but also the producers make sure that individual modules of the appliances are easily exchangeable. Thus, the products can be used for a longer period and we do not have to exchange them for new ones.

**What can you do right now?**

- Check whether in your area there are service points such as a shoe repairer or a tailor and use them.
- Before you throw out an appliance, think about whether it could be repaired. As hard as it might be to believe, there are still some repair service points for electronics. Use them.
- If possible, use a PC instead of a laptop, as it easier to upgrade and exchange parts.
- Support and engage in social awareness campaigns aimed at reducing consumption, eliminating planned obsolescence of products and reintroducing the possibility of repairing appliances.
Nowadays the automotive industry is not only created by specific car brands and big famous manufacturers like Mercedes or Volkswagen. Today an even bigger part of the industry is the supplier companies, which provide everything from the raw materials needed for cars, to complex car parts and technological systems (e.g. safety systems). Before final assembly of the car in a manufacturing plant hundreds of other companies all around the world are involved in manufacturing specific car parts and systems. As a result a complex supply chain is created. The companies at the bottom of the supply chain provide the most basic materials to other suppliers, who manufacture concrete car parts or whole car systems. These are then used by manufacturers in assembly plants. Such an approach helps the industry be more resilient and flexible. It is less dependent on concrete location and market changes. A disadvantage is that often smaller suppliers are pressured to keep prices low and often in developing countries the human rights of workers are violated, this is especially the case for raw material suppliers.

Such complex operations always include severe environmental and social impacts, not only during manufacturing, but throughout the whole life of the vehicle. These impacts need to be considered from cradle to grave. To simplify: from extracting e.g. the metals needed for manufacturing cars, through the CO₂ emissions that a car will produce during its usage, to the safe disposal of an end of life car. All these processes have impacts on the environment and society, which we need to be aware of.

Car manufacturing represents the most important industrial sector for the V4 region. The V4 produced almost 5% of all cars produced globally in 2015 and 18% of all those produced in the EU. There are 30 car manufacturing plants in the V4 countries and hundreds of suppliers of concrete car parts. Supply companies create more jobs than plants and thanks to them industry is distributed all around the region and is not concentrated at a few centers. The car manufacturing industry has become key for the economic performance and employment of the region and the future economic development of the V4 countries will be closely connected to the performance of the automotive industry.

Thanks to crucial changes in new technology, innovations and global markets the automotive industry is expected to undergo major transformation in the near future. Innovations related to autonomous technologies, car sharing, lowering CO₂ emissions and supporting electric motor vehicles will have major impact on the automotive industry. As a centre of car manufacturing in Europe the V4 region will have to keep up with all these changes, especially because it is concentrated on the manufacturing of more traditional diesel and petrol vehicles.

Automotives are also connected to various types of enterprises in the service sector. Particularly the transportation and marketing and the selling and maintenance of vehicles, but also their recycling. Vehicles themselves are probably the most complex product widely used in society. Our economy and way of life is nowadays highly dependent on transportation and therefore on the automotive industry. Many of us use some kind of transportation every day to get to work and it is not unusual to travel tens of kilometers every day by
car or bus. Most consumer goods are transported to shops and markets, often from impossibly large distances. In contemporary global society transportation has become a cornerstone of our way of life. We are used to, for example, enjoying all kinds of fruits and vegetables all year long and it is not unusual for us to consume goods from all around the world on an everyday basis. All these benefits also create a huge number of risks and problems. These risks are often overlooked by those in charge, but also we as global citizens often do not reflect on them at an individual level.

We would like to mention here some of the most important risks and problems that are a result of the dependence of society on transportation.

Raw material depletion is one of the biggest problem of our current car dependent society. Car manufacturing requires variety of raw materials including steel, aluminium, plastics, rubber and glass as well as a variety of precious metals for example platinum group metals for catalytic convertors. It is also important not to forget the metals used in batteries especially lead and lithium. There is around one tonne of different kinds of materials in an average car. One of the most problematic raw materials is aluminium which is extracted from bauxite. The process of getting aluminium from bauxite requires a lot of energy. Thanks to bauxite mining in Brazil, for example, thousands of hectares of rainforest were destroyed and thousands of families had to be resettled from their homes. Even though aluminium mining has severe environmental, energetic, social and human rights impacts its recycling is not 100% effective. The EU is a world leader in recycling aluminium and is able to recycle 90% of the aluminium used in automotives, but only 60% of the aluminium from packaging. It is positive to note that aluminium is infinitely recyclable and therefore greater recycling rates globally could lower the dependence on mining.

Global warming and CO₂ emissions are probably the most discussed environmental issue nowadays. The combustion process in vehicles, and also the energy spent in creating cars are responsible for a decisive share of CO₂ and other greenhouses gas emissions, which are the reason for global warming. As a result innovations in electric vehicles and car sharing are supported, but also social innovations such as car free cities. Transportation in cities has severe impacts including air pollution, safety issues and also parking and public spaces impacts as for example green parts of cities are changed to car parks.

Solutions to all these environmental and social problems that are connected to automotives and transportation have two major parts. They can be divided into institutional solutions and individual solutions. These are both needed and one will not work without the other. Our choices as a consumer need to go hand in hand with governments’, cities’ and other institutions’ actions to help create a more sustainable society.

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Questionnaire on biking to school

1. Do you use a bike for transportation?
   - Yes
   - No

2. Do you bike to school?
   - Yes
   - No

3. Do you think that your home town or village is a bike-friendly place?
   - Yes
   - No

4. Is it easy to get to your school by bike?
   - Yes
   - No

5. Do you think, that biking or walking to school is healthy and funny?
   - Yes
   - No

6. Is there any place in your school to safely park your bike?
   - Yes
   - No

7. Are there any ways, through which biking to school could be made promoted by your school?
   - Yes
   - No

8. Are there any ways, through which biking in your town or village could be made easier by the municipality?
   - Yes
   - No

9. If you do not use a bike, are you interested in some other environmentally friendly ways of transportation to get to school?
   - a) walking
   - b) skate, skateboard
   - c) scooter
   - d) other

SCORE: .................................................................................................................
where does my car come from?

GROUP 1: CAR DOORS

DEFINITION OF CAR DOORS BY WIKIPEDIA:

A car door is a type of door, typically hinged, but sometimes attached by other mechanisms such as tracks, in front of an opening which is used for entering and exiting a vehicle. A vehicle door can be opened to provide access to the opening, or closed to secure it. These doors can be opened manually, or powered electronically.

Thanks to car doors we feel comfortable and safe while driving cars. Car doors are made from carbon steel, but also are as shiny as the rest of the car thanks to the raw material called mica.

At least twenty thousand children work in mica mines in the region Jharkhand/Bihar, India. They work long hours in dangerous conditions. Mica is used in cosmetics, car paints, and many other shiny products. Around 60% of mica extraction comes from India. According to different reports around 20,000 children work in the extractive industry. Child labour is the practice of having children engage in economic activity, on a part- or full-time basis. The practice deprives children of their childhood, and is harmful to their physical and mental development. Poverty, lack of good schools and the growth of the informal economy are considered to be the key causes of child labour in India.

Mica is usually extracted in artisanal and small scale mining. Children as young as 10 hammer flakes of rock off the mountainside. Others, mostly young girls, carry baskets of rocks to the top of the mine to sort through their contents. Their job is to separate glittering fragments from the rock debris.

▶ Short clip about how the car doors are made (in English): https://www.youtube.com/watch?v=r9byGJtbCws
▶ Article on mica extraction (in English): https://www.theguardian.com/sustainable-business/2016/jul/28/cosmetics-companies-mica-child-labour-beauty-industry-india-
The Global Positioning System (GPS), is a global navigation satellite system that provides geolocation and time information to a GPS receiver anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. In cars it is a very useful product as it helps people to find the right way to places and also gives information about traffic, speed limits etc. Thanks to GPS we are using paper maps less today than 20 years ago.

For GPS production, just like other electronic products such as smartphones and notebooks, producers need around 50 raw materials from different parts of the world. The most important and expensive are gold and tantalum. Both are considered to be conflict minerals.

Gold is perhaps the most well known conflict mineral/metal and the one that armed groups are now making the most money from in eastern Congo, as they have mostly switched away from tin and tantalum. Gold is used mainly in jewelry (60 percent of it is used for this according to the World Gold Council), but also in investments and electronics (around 10 percent). It is the most malleable of the four conflict minerals, because it can be melted down virtually at the mine or in one’s house or basement. Large gold deposits are also found in China, the United States, and Australia.

Tantalum, which can also be found in Brazil, Australia, Canada, and Ethiopia, is a rare, dense, and strong metal resistant to corrosion and used mainly in electronics (around 60-75 percent of what is produced). In fact, it is one of the few metals that is almost entirely resistant to acidic solutions and is therefore widely used in medical tools and implants. Due to these properties, this metal is widely used in capacitors and high-power resistors in cell phones, computers, and automotive parts. The “smarter” your phone or laptop is, the more tantalum capacitors it has in it, because of tantalum’s excellent heat-resistant qualities.

- Based on an article on Conflict Minerals from the blog Enough Project: http://enoughproject.org/blog/conflict-minerals-101
- Short clip in Polish on conflict minerals: https://www.youtube.com/watch?v=TKKpW9OfoA&list=PLU_f6JHM7Cl0DCGRhEPnJhEa8YDzq7dtE
Most of the cars use petrol engines in the world are using fossil fuels to make it work.

Petrol engines generate power by burning a volatile liquid fuel (gasoline or a gasoline mixture) with ignition initiated by an electric spark. Gasoline engines can be built to meet the requirements of practically any conceivable power-plant application, the most important being passenger automobiles, small trucks and buses, general aviation aircraft, outboard and small inboard marine units, moderate-sized stationary pumping, lighting plants, machine tools, and power tools.

There are two main methods for removing fossil fuels from the ground: mining and drilling. Mining is used to extract solid fossil fuels, such as coal, by digging, scraping, or otherwise exposing buried resources. Drilling methods allow the extraction of liquid or gaseous fossil fuels that can be forced to flow to the surface, such as conventional oil and natural gas. Both processes carry serious health and environmental impacts.

The world is facing a shortage of fossil fuels, so producers are looking for alternative options for both mining and drilling in new parts of the world (not only in the Middle East).

In Alberta, Canada there is mining from oil sands. New exploitation of the sources have a bad influence on the environmental situation in Canada. According to the government agency Environment Canada, greenhouse gas pollution from the Alberta oil sands is expected to increase by 124 percent between 2010 and 2030 if left unchecked. By 2030, climate pollution from the oil sands could make up 14 percent of Canada’s entire carbon footprint and some 60 percent of the forecast rise in the nation’s greenhouse gas emissions. Indigenous people rely on healthy ecosystems for food, water and their livelihoods, but the oil sands industry has decimated vast amounts of wildlife habitat and polluted the region’s rivers and streams with toxic and carcinogenic chemicals.


 ► 10 facts about Alberta Oil Sands: https://www.desmogblog.com/top-10-facts-canada-alberta-oil-sands-information

 ► Petrol engine in Britannica: https://www.britannica.com/technology/gasoline-engine

worksheets

THE LIFE CYCLE OF A CAR

Put a **P** for production phase, **U** for use phase, and **E** for end phase in the check box after the various elements of the life cycle.

- **Assembly of car from parts in car factory**
- **Producing car parts**
- **Drilling oil**
- **Producing energy from fossil fuels or renewable resources**
- **Driving the car**
- **Repairing and maintenance of the car (e.g. cleaning)**
- **Mining raw materials**
- **Processing ores in smelters**
- **Producing energy from fossil fuels or renewable resources**
- **Research in technology to improve the performance of the cars**
- **Producing energy from fossil fuels or renewable resources**
- **Drilling oil**
- **Extracting rubber from plants**
- **Transport of car parts**
- **Landfilling/incinerating those parts of the car, where recycling is still not feasible**
- **Growing cotton in the field**
- **Producing glass from sand**
- **Producind threads from cotton and producing textiles from threads**
- **Refining oil and producing diesel and petrol**
- **Recycling recyclable elements (e.g. aluminium, steel, parts of the car battery)**
- **Collection of car wrecks**
- **Extracting sand**
Based on the graph above, answer these questions:

- What does this graph tell you about the economic importance of car production in these countries/regions?
- Where it is more/less important?
CAR MANUFACTURING AS A SOURCE OF EMPLOYMENT

Based on the graph above, answer these questions:

► What does this graph tell you about the importance of car manufacturing in these countries/regions in terms of providing employment?

► Where is it more/less important?

► Do you have some ideas about the advantages or disadvantages of this importance?

CAR MANUFACTURING AS AN ECONOMIC SECTOR

Automotive industry % contribution to GDP

<table>
<thead>
<tr>
<th></th>
<th>EU</th>
<th>V4</th>
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<th>Hungary</th>
<th>Poland</th>
<th>Slovakia</th>
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<tr>
<td>Percentage</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>2</td>
<td>12</td>
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</tbody>
</table>

Axis Tale


Based on the graph above, answer these questions:

- What does this graph tell you about the importance of car manufacturing in these countries/regions in the economy?

- Do you have some ideas about the possible advantages or disadvantages of this?
Based on the graph above, answer these questions:

- What do these graphs tell you about the importance of car use in these countries/regions?
- Where it is more/less important on average?
- Where do you think there are bigger deviations from the average, on a global, EU, regional or national level?
The scenarios and the questions leading the group work and the discussion.

1. **MORE FOSSIL FUEL DRIVEN CARS SCENARIO**
   In this scenario each family has two or three cars. These cars are similar to the widely used fuel driven cars (fueled by petrol or diesel oil). In this scenario it is supposed that due to some sudden change, like an unforeseen technological risk, all electric and other alternative cars have disappeared from the streets. Because people are very much attached to cars as a form of transport, fossil fuel driven cars have become even more prevalent, despite their negative impacts.

   Having more fossil fuel driven cars also requires more oil, which is extracted in far away places, and also causes climate change. The negative impacts like climate change and pollution require a strong response from the government.

2. **ONLY ELECTRIC CAR SCENARIO**
   In this scenario electric cars quickly fill the roads as a result of a technological breakthrough, and fossil fuel driven cars are totally outcompeted. People can afford electric cars, similar to the way they can afford fossil fuel driven cars today. Even though the technology advances, electric cars can still run less with one charge than conventional cars (about 500 km rather than 1000 km). Because these cars become cheaper and cheaper, and they do not emit toxic fumes and greenhouse gases like carbon-dioxide to the air, families buy more and more of them, and it is not unusual that a family has three or four cars for different uses (e.g. one for the dad, one for the mum, one big family car for weekend use, a cabrio for the summer or a caravan for going for camping). These cars need a different infrastructure, because they do not run on petrol or diesel oil tanked at a petrol station, but need to be charged from the electric network, which takes one or two hours.

   Electric cars are produced with different technology and the storage of the electric energy in batteries forms an important part of this. To produce electric cars additional kinds of minerals are needed (e.g. lithium). These minerals, especially if demanded in larger amounts, may not be easily available in the future. Some of these resources are concentrated in a few countries, which may not have long term stable trade relationships with the rest of the world.

3. **NO PRIVATELY OWNED CARS SCENARIO**
   In this scenario governments introduce very strict laws to limit the use of fossil fuels because of air pollution and climate change, but the technology of electric cars is still not advanced enough to take over the role of fossil fuel driven cars. Thus privately owned cars virtually disappear. At the same time, governments and local authorities massively develop public infrastructure within and between cities, and biking also becomes easier through the construction of denser biking path infrastructure. Also people walk more in their neighborhood and more frequently help each other out with picking up the kids or arranging the shopping.
Put a right letter for production **T** for throwaway economy and **C** for circular economy in the check box

1. **The mobile has embedded elements, like a camera, which cannot be upgraded, i.e. they cannot be changed or improved during the life cycle of the mobile phone. If the owner wants to take better photos with the mobile, they need to change the whole device.**

2. **The mobile cannot be easily taken apart, and it is more difficult to repair. Often parts are glued together.**

3. **The mobile is built to withstand shocks, e.g. dropping from 2 meters without breaking.**

4. **Older, unused mobiles quickly end up as electronic waste.**

5. **The mobile is not built for longer lifetime and durability. It easily breaks or goes wrong.**

6. **Sometimes not even the battery can be taken out from the mobile. If the battery goes wrong, the whole mobile needs to be replaced.**

7. **Unused mobiles are collected, repaired or upgraded and are resold for other consumers.**

8. **Electronic waste from the mobile phones is recycled in order to use as much of the resources as possible, and all waste is treated properly to minimise environmental impacts and prevent harm to human health.**

9. **Electronic waste from mobile phones is often not treated properly and safely, which is dangerous to the environment and human health.**

10. **All elements, including the battery of the mobile can be replaced easily if they go wrong.**

11. **The mobile has elements (like a camera), which can be replaced to better ones when newer technologies emerge. Thus the owner of the mobile phone can replace the camera to a better one without changing the whole mobile. This is called modularity.**

12. **The mobile is not built for longer lifetime and durability. It easily breaks or goes wrong.**

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How many toys does a child usually receive a year today? How many toys do you think a child used to receive a long time ago? Why do you think there is a difference?

How long do you use your toys for? Can you give an example of the kinds of toys you have used regularly for several months or years? Do you think it was similar centuries ago? If not, why not?

Think of your favourite toy from now or when you were younger and describe what it is made from. Were these materials also regularly used centuries ago? What were the toys usually made from centuries ago?

How are toys usually made nowadays (made by hand or by machines in factories)? How were toys usually made centuries ago (made by hand or by machines in factories)? Which toys are more complicated to produce, which one requires more specialised knowledge?

What happens to the toys you do not like or use any more? What do you think happened to unused toys centuries ago?

Based on the ideas collected, what do you think are the environmental impacts of toys nowadays? What do you think were the environmental impacts of toys centuries ago?
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Worksheets

PUZZLES

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TOY BALLS

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### MAKING GOLD FAIR

**A**

You are a miner working in Bolivia in gold mining. You work in a mine, where the conditions are rather bad (long working hours, no safety equipment, when you need to go underground into the mine, not enough payment to pay for your social costs (e.g. to afford secondary and let alone higher education for your children). You heard about fair trade certification and you ask the mining company representative to switch to fair trade certification, as it could improve your own life.

In your discussion try to convince the company representative to switch to fair trade certification.

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**B**

You are a representative of the mining company, interested to keep your business working and being profitable. You know that the chief executives of the company are interested in profit and they need to report to their shareholders (who contribute to financing the company through buying shares, and expect to receive profit on their investment). You know that the conditions in the mine are really not that good, but you also know, that your bosses would not like the idea of switching to fair trade certification.

In your discussion defend the financial interests of the mining company.